

**Abstract of the Disclosure**

**PROCESS FOR FABRICATING A SEMICONDUCTOR DEVICE COMPRISING  
A GATE DIELECTRIC MADE OF HIGH DIELECTRIC PERMITTIVITY  
MATERIAL**

A process and a device for fabricating a semiconductor device having a gate dielectric made of high-k material, includes a step of depositing, directly on the gate dielectric, a first layer of  $\text{Si}_{1-x}\text{Ge}_x$ , where  $0.5 < x \leq 1$ , at a temperature substantially below the temperature at which a poly-Si is deposited by thermal chemical vapor deposition (CVD).